International Ocean Colour Science Meeting 2013

Advancing Global Ocean Colour Observations

Splinter 5

International Ocean Colour Community View & the OCR-VC

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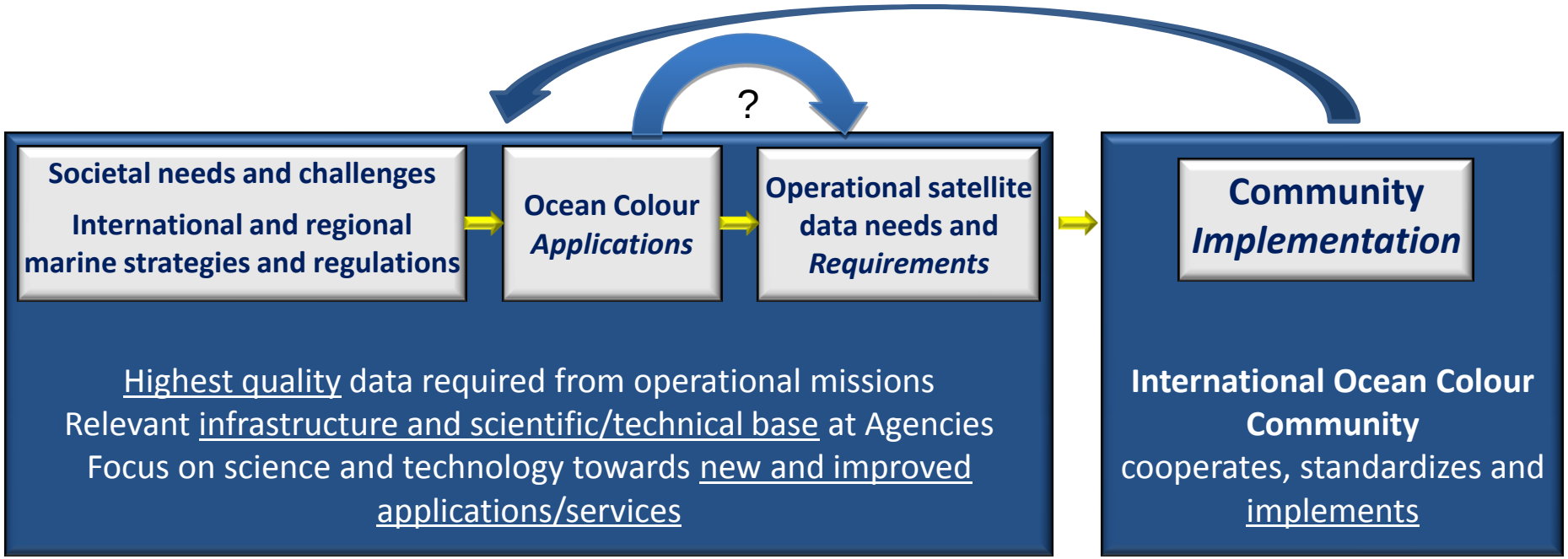

?
Societal needs and challenges
International and regional marine strategies and regulations
Ocean Colour
Applications
Operational satellite data needs and
Requirements
Community
Implementation
Highest quality data required from operational missions
Relevant infrastructure and scientific/technical base at Agencies
Focus on science and technology towards new and improved applications/services
International Ocean Colour Community
cooperates, standardizes and implements

Applications

- **1. Science (from PFTs to Earth System Science)**
- **2. Climate**
- **3. Services:**
  - **marine environmental assessment,**
  - **water quality,**
  - **Fisheries & aquaculture,**
  - **HABs,**
  - **oil spills,**
  - **marine disasters,**
  - **eutrophication**

Need to engage external communities to define requirements

- **4. Marine and coastal management (spatial planning)**
- **5. Modelling, bio-geo-chemical models**

Requirements

1. Accuracy, stability and multi-mission consistency

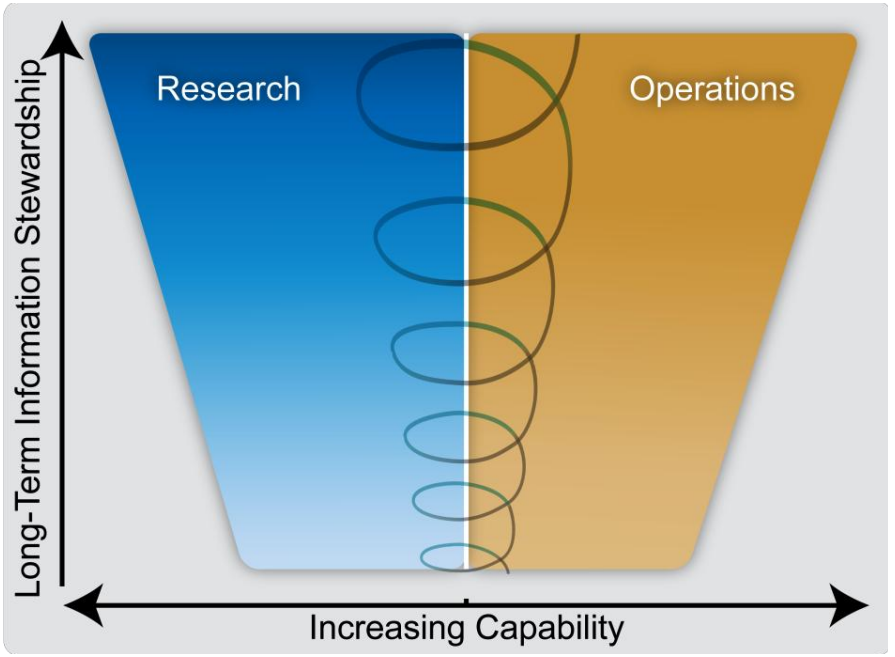
2. Product quality estimates

3. Multi-mission data access

4. Data continuity, impact of loosing or adding missions

5. Means of data distribution and data access timeliness (near-real time, off-line and re-processed)

6. Specifications: geophysical parameters, data formats, product levels, resolution, diurnal frequency (geostationary missions), access to source code, tools, sensitivity to mission reprocessings, availability of data early in the mission



What is a Virtual Constellation ?

- A CEOS Virtual Constellation is a set of space and ground segment capabilities operating together in a coordinated manner, in effect a **virtual system** that overlaps in coverage in order to **meet a combined and common set of Earth Observation requirements**.
- The Constellation concept builds upon or serves to **refocus already existing projects and activities**.
- The Constellations effort provides a unique forum to **achieve political visibility and increase mutual benefit among space and other environmental agencies** in support of cross-cutting GEO Tasks and Targets.
- In particular, they offer opportunities to
  - share experience in the **development of algorithms**;
  - **standardize data products and formats**;
  - exchange information regarding the **calibration and validation** of measurements;
  - facilitate **timely exchange and access to data products** from existing and planned missions;
  - and facilitate **planning of new missions** – ranging from coordinating orbits to optimizing observational coverage to sharing implementation of mission components.

Ocean Colour Radiometry Virtual Constellation

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Background

- The Ocean Colour Radiometry Virtual Constellation (OCR-VC) will provide long time series of calibrated ocean color radiance (OCR), enable networking to avoid duplication of efforts, and ensure availability of OCR data to benefit everyone
- OCR-VC activities will include Cal/Val, satellite & in-situ data merging, product generation, as well as development and demonstrations of new and improved applications
- An *in situ* complement to the VC is in development, **INSITU-OCR**: The International Network for Sensor InTercomparison and Uncertainty assessment for Ocean Colour Radiometry”

Objectives

The OCR-VC implementation plan includes followings.

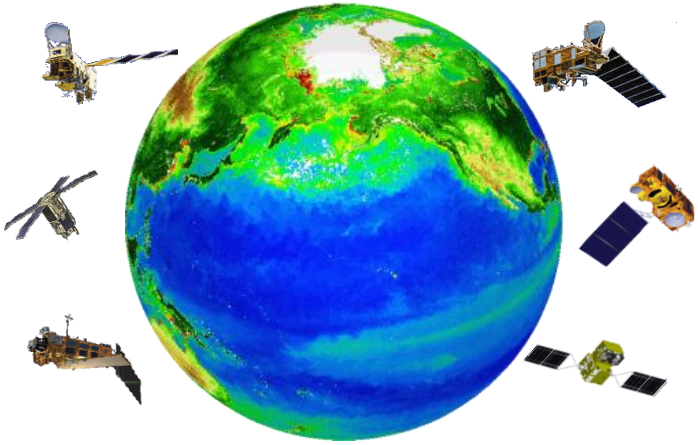
①Ensure continuity of global OCR data (VIIRS, OLCI, SGLI, OCM-2, GOCI..)

②Provide high quality data sets (int’l algorithm development, calibration/validation, data processing/re-processing)

③Data harmonization supporting GCOS/ECVs

④Facilitate timely and easy access to data, i.e., user interface

⑤Capacity building and outreach, supporting training courses of research and applications (the right photo shows an example of the training course)



Ocean Colour provides a global view of the marine biosphere and chemosphere, and contributes to many Societal Benefit Areas: Agriculture, Ecosystems, Climate, Water...

Practical sessions in the Training Course on "Methods and Applications of Ocean Colour Remote Sensing in African Coastal and Regional Seas“ was held in 12 - 23 October 2009, Zanzibar, Tanzania

Proposal currently being discussed within CEOS

"Additionally, CEOS will consider how best to capitalize on the existence of the four ocean-related Virtual Constellations by reviewing and investigating the feasibility of creating an overarching entity for operational oceanography.**"**

Ocean VCs for : OCR, OSVW, OST, and SST

Proposal E. Lindstrom (NASA)

GEO Blue Planet

1.Global Ocean Information Coordination and Access
2.Operational Systems for Monitoring Marine and Coastal Ecosystems
3.A Global Operational Ocean Forecasting Network
4.Applications of Earth Observations and Information to Sustainable Fishery and Aquaculture Management

International Ocean Colour Coordinating Group

Ocean Colour Radiometry Virtual Constellation

Community organization to support the implementation

GEO Blue Planet

Operational Systems for Monitoring of Marine and Coastal Ecosystems

...

GOOS / GODAE

- Do we need community organization at the international level – or are the applications region specific?
- Are there a missing components ?
  - Requirement definition
  - Systematic product generation
- On community organization to support implementation– options could:
  - Make use of IOCCG and OCR-VC
  - GHRSST “model”
  - Federated oversight regional entities, network-of-networks, ChloroGIN “model”

- Where should we start?:
  - Identify a pilot (e.g. HABs, eutrophication, fisheries…) – **IOCS today!**
  - Involve scientific community & external stakeholders (i.e. users) in defining requirement. **IOCCG/IOCS & stakeholder community**
  - Space Agencies to discuss how the implement sustained production through **OCR-VC**

In undertaking the above record best practices that can be applied to additional application areas

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CEOS Interfaces to GHRSST

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